



HCT CO., LTD.

CERTIFICATION DIVISION
105-1, JANGAM-RI, MAJANG-MYEON, ICHEON-SI, KYOUNGKI-DO, REPUBLIC OF KOREA
TEL: +82 31 645 6300 FAX: +82 31 645 6401

EMI CERTIFICATION REPORT

Applicant:

TCT MOBILE LIMITED

5F, E Building, No. 232, Liang Jing Road, Zhang Jiang
High-Tech Park, Pudong Area, Shanghai, P.R, China

Date of Issue: June 08, 2012

Test Report No.: HCTE1204FE39-3

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

RAD285

Rule Part(s) / Standard(s) : FCC PART 15 Subpart B Class B
Equipment Type : PCS CDMA Phone with Bluetooth / WLAN
Model(s) Name : Walleye
Marketing Name : Juke-A556C
Port / Connector(s) : USB Port / Headset Port

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2003. (See Test Report if any modifications were made for compliance)

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

HCT certifies that no party to application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862

Report prepared by
: Jeong Hyeon Choi
Test Engineer of EMC Team

Approved by
: Sang Jun Lee
Manager of EMC Team

REVISION HISTORY

Report NO.	Date	Description
HCTE1204FE39	April 30, 2012	First Approval Report
HCTE1204FE39-1	May 22, 2012	Added model name and marketing name.
HCTE1204FE39-2	May 23, 2012	Correct due to typo (FCC ID, SW Version)
HCTE1204FE39-3	June 08 2012	Added product description (Networks, Data Speed)

TABLE OF CONTENTS

	PAGE
1. GENERAL INFORMATION	4
1.1 Product Description	4
1.2 Related Submittal(s) / Grant(s)	4
1.3 Tested System Details	5
1.4 Cable Description	6
1.5 Noise Suppression Parts on Cable. (I/O cable)	6
1.6 Test Methodology	7
1.7 Test Facility	7
1.8 Frequency Range of Radiated Measurements	7
2. SYSTEM TEST CONFIGURATION	8
2.1 Configuration of Test System	8
3. PRELIMINARY TEST	9
3.1 Conducted Emission Test	9
3.2 Radiated Emission Test	9
4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY	10
4.1 Conducted Emission Test	10
4.2 Radiated Emission Test	11
5. FIELD STRENGTH CALCULATION	16
6. TEST EQUIPMENT	17
7. CONCLUSION	18

ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is **PCS CDMA Phone with Bluetooth / WLAN, Model: Walleye** manufactured by **TCT MOBILE LIMITED**. Its basic purpose is used for communications.

Model	Walleye
MEID	270 113 181 404 487 638
Marketing Name	Juke-A556C
HW Version	V3A
SW Version	vI49
FCC ID	RAD285
E.U.T Type	PCS CDMA Phone with Bluetooth / WLAN
TX Frequency	1 851.25 MHz to 1 908.75 MHz (PCS CDMA)
RX Frequency	1 931.25 MHz to 1 988.75 MHz (PCS CDMA)
Networks	CDMA 1900(BC1) - 1XEV-DO rA Wi-Fi®(802.11 b/g/n) (802.11n 2.4 GHz only)
Data Speed	Up to HSDPA 7.2Mbps

1.2 Related Submittal(s) / Grant(s)

Original submittal only.

1.3 Tested System Details

All equipment descriptions used in the tested system (including inserted cards) are:

Device Type	Manufacturer	Model Number	FCC ID / DoC	Connected To
E.U.T	TCT	Walleye	RAD285	Notebook PC
Notebook PC	LG	X140-02	DoC	E.U.T Notebook PC adaptor
Notebook PC adaptor	DELTA (JIANG SU)	ADP-40PH AD	-	Notebook PC
Mouse	PRIMAX ELECTRONICS	MOARUO	DoC	Notebook PC
Micro SD card (8 GB)	SanDisk	-	-	E.U.T
USB cable	-	-	-	E.U.T Notebook PC
Headset	-	-	-	E.U.T
RJ45 cable	-	-	-	Router Notebook PC
Router	-	HIGATE PLUS K12L012.00	-	Notebook PC
Router adaptor	FAIRONE ELECTRONICS	FLDE0501000K	-	Router

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
E.U.T	Micro USB	Y	Y	(P,D)1.0
	Headset jack	-	N	(D)1.6
Notebook PC	USB (Mouse)	-	Y	(D)1.5

* The marked "(D)" means the data cable and "(P)" means the power cable.

1.5 Noise Suppression Parts on Cable. (I/O cable)

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
E.U.T	Micro USB	N	-	Y	Both End
	Headset jack	N	-	Y	E.U.T End
Notebook PC	USB (Mouse)	Y	Notebook PC End	Y	Notebook PC End

1.6 Test Methodology

Both Conducted and Radiated testing was performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to E.U.T distance of 3 m

1.7 Test Facility

The 3 m semi anechoic chamber used to collect the test data is located at the 105-1, Jangam-Ri, Majang-Myeon, Icheon-Si, Kyongki-Do, Republic of Korea. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4.

Detailed description of test facilities was submitted to the Commission and accepted dated Mar 02, 2011 (Registration Number: 90661)

1.8 Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

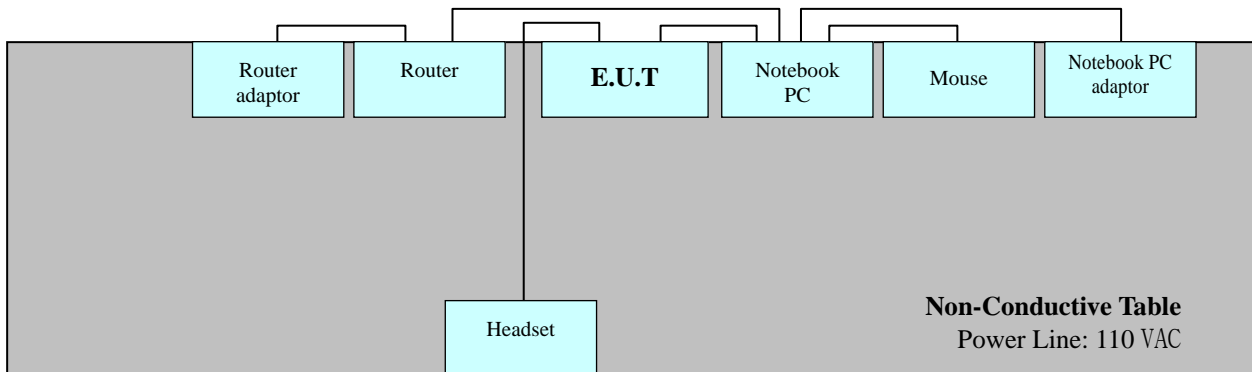
2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

Power Line Conducted test : E.U.T was connected to LISN via Notebook PC adaptor.
Preliminary Power Line Conducted Emission tests were performed by using the procedure in ANSI C63.4/2003 7.2.3 to determine the worst operating conditions.

Radiated Emission test : Preliminary Radiated Emission tests were performed by using the procedure in ANSI C63.4/2003 8.3.1.1 to determine the worst operating condition. Final Radiated Emission tests were performed at 3 m semi-anechoic chamber.

[Configuration of Tested System]



3. PRELIMINARY TEST

3.1 Conducted Emission Test

- It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: Data Communication mode

3.2 Radiated Emission Test

- It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: Data Communication mode

4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

4.1 Conducted Emission Test

The following table shows the highest levels of conducted emissions on both polarization of hot and neutral line.

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)

Operation Mode : Data Communication mode

Temperature : 24.0 °C

Humidity Level : 44.0 %

Test Date : April 30, 2012

Frequency (MHz)	Transd (dB)	Conductor (H/N)	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
			(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)
0.150	10.0	N	66	42.0	52.0	56	-	-
0.157	10.0	H	66	41.4	51.4	56	-	-
19.920	11.5	H	60	31.6	43.1	50	-	-
19.808	11.4	N	60	31.5	42.9	50	-	-
20.104	11.5	H	60	31.5	43.0	50	-	-
20.216	11.4	N	60	31.8	43.2	50	-	-

※ **NOTE:** Refer to page 11 to page 14 for details.

1. The worst-case emissions are reported.
2. Line H = Hot, Line N = Neutral

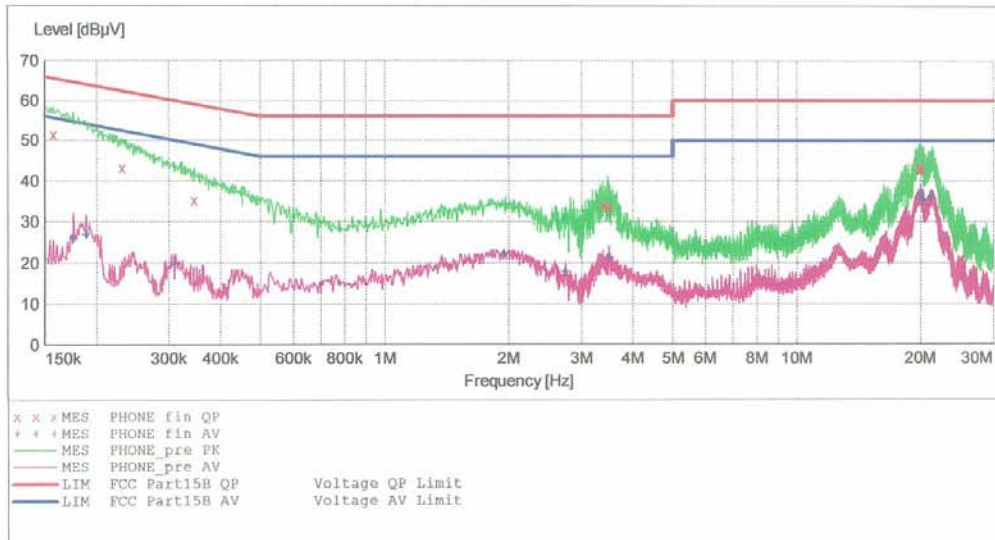
HCT

EMC

EUT: Walley
 Manufacturer: TCT MOBILE
 Operating Condition: DATA MODE
 Test Site: SHIELD ROOM
 Operator: JH-CHOI
 Test Specification: FCC PART15 CLASS B
 Comment: H

SCAN TABLE: "FCC PART 15 B(H)"

Short Description:			FCC PART 15 CLASS B			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	1.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

4/30/2012 2:07PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.157010	51.40	10.0	66	14.3	---	---
0.231010	43.20	10.1	62	19.2	---	---
0.346010	35.30	10.1	59	23.8	---	---
3.388000	34.00	10.3	56	22.0	---	---
3.476000	33.50	10.3	56	22.5	---	---
3.500000	33.60	10.3	56	22.4	---	---
19.824000	42.90	11.5	60	17.1	---	---
19.920000	43.10	11.5	60	16.9	---	---
20.104000	43.00	11.5	60	17.0	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

4/30/2012 2:07PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.176010	26.00	10.1	55	28.7	---	---
0.189010	26.90	10.1	54	27.1	---	---
0.311010	19.90	10.1	50	30.1	---	---
1.952000	22.20	10.2	46	23.8	---	---
2.744000	17.80	10.3	46	28.2	---	---
3.504000	21.30	10.3	46	24.7	---	---
19.968000	36.80	11.5	50	13.2	---	---
20.248000	35.20	11.5	50	14.8	---	---
21.184000	35.90	11.6	50	14.1	---	---

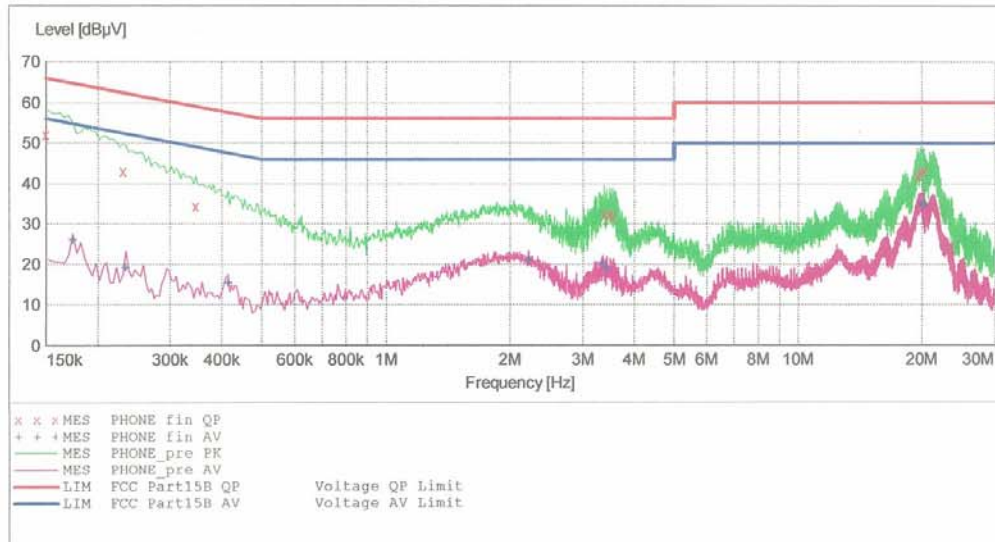
HCT

EMC

EUT: Walley
 Manufacturer: TCT BOBILE
 Operating Condition: DATA MODE
 Test Site: SHIELD ROOM
 Operator: JH-CHOI
 Test Specification: FCC PART15 CLASS B
 Comment: N

SCAN TABLE: "FCC PART 15 B(N)"

Short Description:			FCC PART 15 CLASS B			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

4/30/2012 2:11PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150010	52.00	10.0	66	14.0	---	---
0.230010	43.00	10.1	62	19.5	---	---
0.346010	34.40	10.1	59	24.6	---	---
3.388000	32.40	10.3	56	23.6	---	---
3.504000	32.50	10.3	56	23.5	---	---
3.552000	31.80	10.3	56	24.2	---	---
19.484000	41.90	11.4	60	18.1	---	---
19.808000	42.90	11.4	60	17.1	---	---
20.216000	43.20	11.4	60	16.8	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

4/30/2012 2:11PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.174010	25.90	10.0	55	28.9	---	---
0.234010	19.20	10.1	52	33.1	---	---
0.414010	15.40	10.1	48	32.1	---	---
2.220000	20.90	10.2	46	25.1	---	---
3.356000	20.20	10.3	46	25.8	---	---
3.436000	18.70	10.3	46	27.3	---	---
20.064000	35.10	11.4	50	14.9	---	---
20.124000	34.60	11.4	50	15.4	---	---
20.148000	34.50	11.4	50	15.5	---	---

4.2 Radiated Emission Test

The following table shows the highest levels of Radiated Emissions on both polarization of horizontal and vertical.

Limit Apply to : FCC PART 15 Subpart B Class B

-For measurement below 1 GHz

Detector : Quasi-Peak (6 dB Bandwidth: 120 kHz)

Operation Mode : Data Communication mode

-For measurement above 1 GHz

Detector : Peak mode: Peak (RBW: 1 MHz / VBW: 1 MHz)

: Average mode: Peak (RBW: 1 MHz / VBW: 10 Hz)

Operation Mode : Data Communication mode

Temperature : 22.9 °C

Humidity Level : 47.0 %

Test Date : April 30, 2012

Frequency (MHz)	Reading (dBuV)	Polarity (H/V)	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
53.300	11.26	V	1.0	12.24	3.60	40.0	27.1	12.9
80.900	16.78	H	2.7	7.92	3.80	40.0	28.5	11.5
124.900	17.31	H	3.0	12.09	4.00	43.5	33.4	10.1
141.000	13.27	V	1.0	12.82	4.01	43.5	30.1	13.4
500.001	12.51	H	1.0	17.69	5.30	46.0	35.5	10.5
757.000	7.97	H	1.0	21.83	5.70	46.0	35.5	10.5

※ NOTE:

1. Measurement above 1 GHz was performed from 1 GHz to the 5th harmonic of highest fundamental frequency. The highest fundamental frequency is CDMA 1 900 center frequency.
2. For measurement above 1 GHz, Emission noise was not founded over the ambient noise.

5. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the antenna factor and cable factor.
The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF$$

Where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 21.5 dB μ V is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dB μ V/m value is mathematically converted to its corresponding level in μ V/m.

$$FS = 21.5 + 7.4 + 1.1 = 30 \text{ dB}\mu\text{V/m}$$

[Radiated Emission Limits]

Frequency of Emission (MHz)	Field Strength	
	μ V/m	dB μ V/m
30 to 88	100	40.0
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

6. TEST EQUIPMENT

<u>Type</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Next CAL Date</u>
<u>Conducted Emission</u>				
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESCI	100584	2012.05.03
<input checked="" type="checkbox"/> LISN	Rohde & Schwarz	ESH3-Z5	100282	2013.02.03
<input checked="" type="checkbox"/> LISN	Rohde & Schwarz	ENV216	100073	2013.02.09
<input checked="" type="checkbox"/> Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.352	2012.08.01
<u>Radiated Emission</u>				
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	2012.05.26
<input type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU26	100241	2012.08.02
<input type="checkbox"/> Trilog Antenna	Schwarzbeck	VULB9160	3125	2013.05.03
<input checked="" type="checkbox"/> Trilog Antenna	Schwarzbeck	VULB9160	3301	2012.09.13
<input type="checkbox"/> Antenna master	INNCO Systems	MA4000-EP	MA4000/283	-
<input type="checkbox"/> Turn Table	INNCO Systems	DT3000-3T	DT3000/69	-
<input checked="" type="checkbox"/> Antenna master	HD GmbH	MA240	240/520	-
<input type="checkbox"/> Antenna master controller	HD GmbH	HD100	100/637BJ:00	-
<input checked="" type="checkbox"/> Turn Table	HD GmbH	2090	9702/1224	-
<input checked="" type="checkbox"/> Power Amplifier	Rohde & Schwarz	SCU-18	10094	2012.09.19
<input type="checkbox"/> Communication Antenna	Schwarzbeck	USLP9142	9142-248	-
<input checked="" type="checkbox"/> Horn Antenna	Schwarzbeck	BBHA 9120D	937	2013.10.17

7. CONCLUSION

The data collected shows that the **PCS CDMA Phone with Bluetooth / WLAN, Model: Walleye, FCC ID: RAD285** complies with §15.107 and §15.109 of the FCC rules.